Emotional intelligence among nursing students

Title: EMOTIONAL INTELLIGENCE AMONG NURSING STUDENTS: FINDINGS FROM A CROSS-SECTIONAL STUDY

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Emotional intelligence among nursing students: Findings from a cross-sectional study

Abstract

Background: Emotional intelligence in nursing is of global interest. International studies identify that emotional intelligence influences nurses' work and relationships with patients. It is associated with compassion and care. Nursing students scored higher on measures of emotional intelligence compared to students of other study programmes. The level of emotional intelligence increases with age and tends to be higher in women.

Objectives: This study aims to measure the differences in emotional intelligence between nursing students with previous caring experience and those without; to examine the effects of gender on emotional intelligence scores; and to test whether nursing students score higher than engineering colleagues on emotional intelligence measures.

Design: A cross-sectional descriptive study design was used.

Settings and participants: The study included 113 nursing and 104 engineering students at the beginning of their first year of study at a university in Slovenia.

Data: Emotional intelligence was measured using the Trait Emotional Intelligence Questionnaire (TEIQue) and Schutte Self Report Emotional Intelligence Test (SSEIT).

Methods: Shapiro-Wilk's test of normality was used to test the sample distribution, while the differences in mean values were tested using Student t-test of independent samples.

***Results*:** Emotional intelligence was higher in nursing students (n = 113) than engineering students (n = 104) in both measures [TEIQue $t = 3.972$; $p < 0.001$; SSEIT $t = 8.288$; $p < 0.001$]. Although nursing female students achieved higher emotional intelligence scores than male students on both measures, the difference was not statistically significant [TEIQue $t = -0.839$; $p = 0.403$; SSEIT $t = -1.159$; $p = 0.249$]. EI scores in nursing students with previous caring experience were not higher compared to students without such experience for any measure [TEIQue $t = -1.633$; $p = 0.105$; SSEIT $t = -0.595$; $p = 0.553$].

Conclusions: Emotional intelligence was higher in nursing than engineering students, and slightly higher in women than men. It was not associated with previous caring experience.

Keywords: emotional intelligence, caring, recruitment, retention, psychometrics, nursing.

1. Background

Emotional intelligence (EI) was originally described by Salovey and Mayer (1990, p. 189) as "the ability to monitor one's own and others' emotions, to discriminate among them, and to use the information to guide one's thinking and actions". There is no unified theory of EI; EI is theorised as either a trait (e.g. Petrides & Furnham, 2000) or an ability (Salovey and Mayer, 1990). As a trait, like personality, EI is understood to be relatively fixed, whereas theorised as an ability – and Mayor, Caruso and Salovey (1999) argue that EI is an ability like general intelligence (IQ) – then it should be possible to improve an individual's EI through educational intervention.

EI is proposed as important for nursing practice (Bulmer-Smith et al., 2009; Cadman & Brewer, 2001) and there is a growing international literature examining relationships between EI and a range of nursing attributes, including leadership (Duygulu et al., 2011; Benson et al., 2010; Erkutlu & Chafra, 2012; Chan et al., 2014), stress management (Gorgens-Ekermans & Brand, 2012; Zhang et al., 2016), nursing student mental well-being (Montes Borges & Augusto, 2007) and caring behaviours (Rego et al., 2010). If EI is important for nursing, then it might be argued that nurse educators should ensure that nursing students have high EI at the point of graduation from nursing programmes. However, given the conceptual debates and the empirical evidence that supports the trait argument (Van der Linden et al., 2012) as well as the ability argument (Benson et al., 2010; Foster et al., 2017) then it would be foolhardy for nurse education establishments to rely on being able to develop enough EI in their students during the process of their education to make them excellent nurses. There is therefore an argument for selecting nursing students for EI as either a basis from which to further develop such skills (i.e. as an ability) or in light of the argument that the level of EI that an individual possesses might be set prior to education (i.e. as a trait), in which case selection for high levels of EI on entry to education might be necessary.

A longitudinal study of nursing and midwifery students (n=867) in the United Kingdom (UK) (Snowden et al., 2015; Stenhouse et al., 2016) aimed to understand the relationship between student EI on entering nurse education and their retention and successful completion of nursing programmes in an attempt to understand whether EI would be a useful criterion for student nurse selection. They (Snowden et al., 2017) found that trait emotional intelligence had a small significant relationship to successful programme completion. The generalisability of these findings to other countries and cultures is not known. This paper presents a cross sectional analysis of data from the first stage of a replication of the Snowden et al. (2015) study in a cohort of nursing students in Slovenia.

Emotional intelligence in nursing

There is a growing international body of empirical work examining student nurse EI. Cerit and Beser (2014) found gender differences in their study of EI in nursing students in Turkey. Whilst female students achieved higher average scores on global scores, empathy and social skills dimensions, male students achieved higher scores on emotional awareness, control of emotions and motivation (Cerit & Beser, 2014). Additionally, Snowden et al. (2015) found that global EI scores on both trait and ability measures were higher for women than men and that EI increased

with age. Students of nursing and midwifery demonstrated higher EI than students of other study programmes (Snowden et al., 2015). In an Australian study, EI increased over the course of a pre-registration nursing programme (Foster et al., 2017).

International studies of EI in nursing students have generally focused on its relationship to student health and coping. Aradilla-Herrero et al. (2014) in a Spanish study found that nursing students who experienced depression and scored highly on the 'attention to emotion' factor of the Trait Meta Mood Scale (Salovey et al., 1995) had an increasing likelihood of suicidal ideation. This builds on Augusto-Landa & Montes-Berges' (2009) findings that scores on this factor were negatively related to self-esteem in nursing students. In Korea, Jeong (2015) found a negative relationship between EI and emotional labour, while Kim and Han (2015) and Moradi et al. (2011) found relationships between EI and coping strategies in nursing students. Thus, much of the EI research is focused on the impact on the student rather than the relationship with retention and the development of the required competence and knowledge for nursing.

While EI was found to correlate positively with nursing students' clinical performance (Zysberg et al., 2011; Beauvais et al., 2011), successful completion of nursing programmes (Jones-Schenk & Harper 2014; Snowden et al., 2017) and motivation and academic performance (Leskovic, 2016), research otherwise does not always confirm that the level of EI among first-year undergraduate nursing students is necessarily predictive of their subsequent performance. Even students with a lower level of EI have the potential to successfully complete their programme (Snowden et al., 2017). This is why the relationship between EI and performance needs further research.

The relationship between EI and performance is not straightforward. For example, although it has been suggested that low level of EI among nurses was associated with failings in care for patients, particularly in relation to issues such as understanding and compassion (Francis, 2013), the mechanism of these relationships are not understood. Francis (2013) suggested that more research is needed to better understand the relationship between these attributes.

There is a lack of research in the field of EI in Slovenia in relation to health care, although many studies show that the connection between EI and adequate health care is one of the strongest in the whole field of patient care (Cerit & Beser, 2014). There is evidence that EI is associated with successful completion of nursing studies, but again the relationship is not altogether clear (Jones-Shenk & Harper, 2014).

In the UK previous caring experience is promoted as a selection criterion for student nurses (Francis, 2013). However, Snowden et al. (2017) found no correlation with performance or

retention on programmes. The context for many recruits onto nursing programmes in Slovenia differs from that in the UK in that in Slovenia there is a secondary school system that provides education for Health Care Technicians (HCT).

Slovenian Secondary Schools for Health Care Technicians

Slovenia has a system of secondary schools, which prepare HCT for their work in health and social care environments. Pupils enter these schools at age 15 following nine years of primary education. The first two years are characterized by a basic secondary education and the last two years are focused on health care knowledge and competences. Theoretical professional and practical education within schools is complemented by practical training in a range of health care facilities under the supervision of a school and clinical mentor. The distribution of time spent acquiring practical versus theoretical skills is set at 1018 versus 1496 hours, respectively. Following secondary school, HCTs can enter the nursing colleges and faculties to undertake a 3-year Diploma degree in nursing at European Qualifications Framework (EQF) level 6. However, not only HCTs can enter diploma undergraduate nursing study programmes, students from general (gymnasium) and other technical secondary educational schools can enter as well. Thus, many entrants to Diploma degree nurse education in Slovenia have experience of clinical practice settings in line with Francis' (2013) recommendation that students undertake a period of clinical practice before applying for a nursing course as a means of improving the caring and compassion of nurses who enter training (and perhaps arguably their EI).

Aim

The aim of this study was to determine if the findings of similar studies were replicable in Slovenia.

Objectives

To establish whether there were statistically significant differences in emotional intelligence between nursing students with previous caring experience and those without; to examine the effects of gender on EI scores; and to test whether nursing students score higher than their engineering colleagues on EI measures.

Hypotheses

Three hypotheses were tested in the scope of this study:

1. Students with previous caring experience will show higher EI than those without.
2. Men will have lower EI than women.
3. Nursing students will have higher EI than non-nursing students.

2. Methods

2.1 Design

The study followed a cross-sectional descriptive design.

2.2 Participants

The study included 113 first year diploma undergraduate nursing students and 104 first year undergraduate computing students at two faculties in Slovenia. All first year students were invited to participate. Out of 220 applicable students, three did not complete the questionnaire and were excluded from the study. The survey was conducted between 16th November 2016 and 30th January 2017.

2.3 Data Collection

All 217 students completed a questionnaire that contained the Trait Emotional Intelligence Questionnaire (TEIQue Short Form) (SF) (Petrides, 2009) and Schutte's Self Report Emotional Intelligence Test (SSEIT) (Schutte et al., 1998) in the Slovenian language using an online questionnaire in both cases. Healthcare and language experts translated both instruments into Slovene using the back-translation technique in order to guarantee the equivalence between both languages.

2.4 Data analysis

Data were analysed using the statistical program IBM SPSS version 22. Distributions were tested for normality to select the appropriate statistical test. All hypotheses were tested using

non-parametric or parametric tests based on the distribution of the data for specific variables. Results are shown in the form of graphs and tables.

2.5 Ethical Considerations

The permission to perform the research from the institutional ethics commission was obtained in November 2016. Before carrying out the research participants were introduced to the purpose of the research, their rights and obligations. They were also informed about their voluntary participation, anonymity and ability to leave the study at any time.

3. Results

The study involved 217 participants of which 113 (52%) were male and 104 (48%) female. The majority of nursing students were female (n=104, 92%) while the majority of engineering students were male (n=88, 85%). The study included 113 first-year nursing students (52%) and 104 first-year engineering students (48%). The age of the respondents ranged from 18 to 43 years. Of these, 69% (n=150) were 19 years old, which is the age when most of the students start their study at university level in Slovenia.

Distributions of all responses to both measures were tested for assumptions of normality. Fig. 1 shows the distribution for the TEIQue and Fig. 2 for the SSEIT measure.

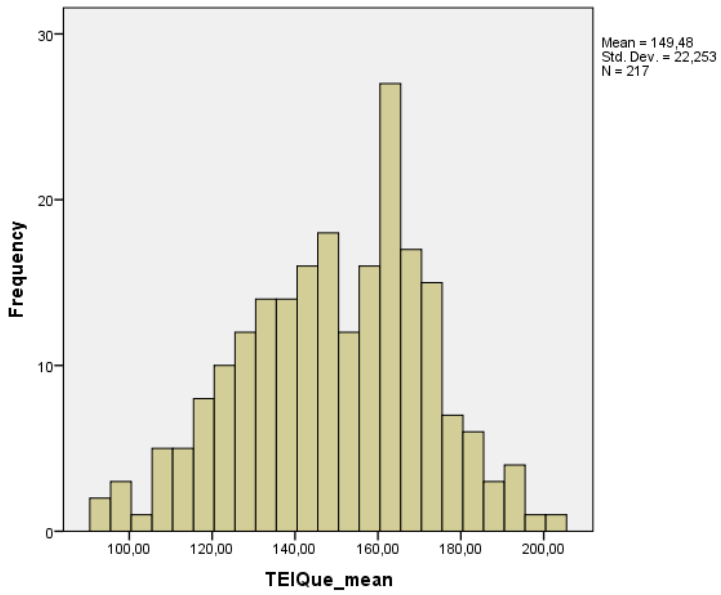

Fig. 1. TEIQue total distribution

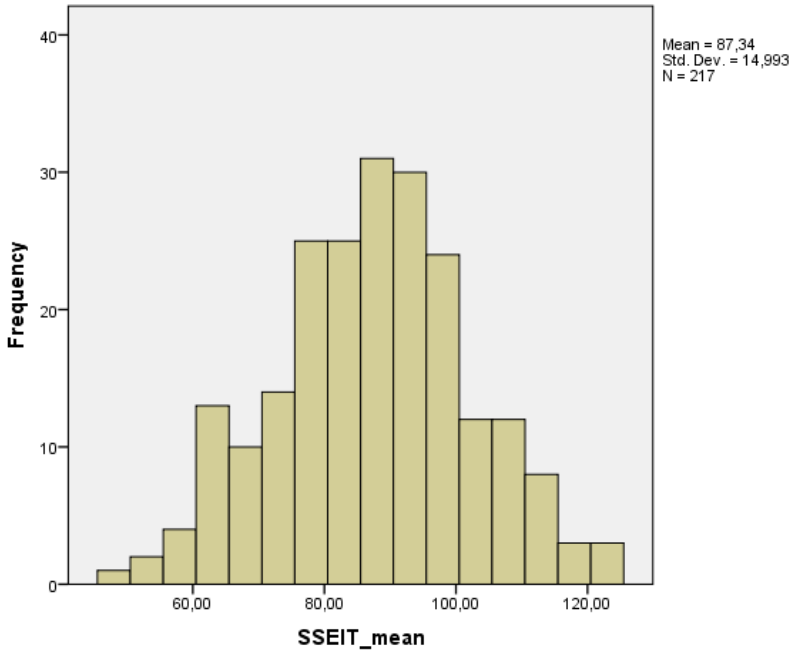

Fig. 2. SSEIT total distribution

1. Students with previous caring experience will show higher EI than those without.

There were 86 (40%) participants with previous caring experience and 131 (60%) without previous caring experience. A total of 81 nursing students (72%) and only five (5%) engineering students had previous caring experience. Of these, 58% (n = 52) gained their experience in hospital, 21% (n = 19) in other facilities, 14% (n = 12) in nursing homes and 7% (n = 6) in their home. As the focus of this study was on nursing students, the data from engineering students was not used in this comparison due to an extremely low number of participants with previous caring experience. The distribution of both measures was Gaussian, which allowed us to use a parametric statistical test (i.e. t-test presented in Table 1).

Table 1

Mean EI scores by previous caring experience for nursing students.

		Mean value ± standard deviation	p-value
SSEIT	With caring experience	93.95 ± 11.92	0.553
	Without caring experience	95.53 ± 14.57	
TEIQue	With caring experience	152.93 ± 20.85	0.105
	Without caring experience	160.44 ± 24.82	

Although the trend was to lower scores on both measures in those with previous caring experience, the differences were not significant.

2. Men will have lower EI than women.

Despite the small number of men in nursing and small number of women in the engineering group, the sample was split by study programme and the differences in both groups analysed separately. Distribution of responses for both measures was normal in both comparisons. Independent-Samples t-test did not show statistically significant differences between male and female scores, except in the case of the SSEIT score in engineering students (Table 3).

Table 2
Mean EI scores by gender and study programme.

		Nursing		Engineering	
		Mean value ± standard deviation	p-value	Mean value ± standard deviation	p-value
SSEIT	Male	91.12 ± 13.30	0.249	78.81 ± 13.09	0.025
	Female	94.98 ± 12.55		89.88 ± 15.20	
TEIQue	Male	150.88 ± 22.28	0.403	142.89 ± 21.33	0.355
	Female	155.79 ± 22.22		150.00 ± 11.02	

It has to be noted that the SSEIS result was significant, but it was based on relatively small subgroups, especially in the case of engineering students with only 8 (8%) female students.

3. Nursing students will have higher EI than non-nursing students.

There is a statistically significant difference in EI among students of different study programmes measured with both scales. Table 3 shows the results by study program with nursing students achieving higher EI scores than non-nursing students.

Table 3
Mean EI scores by study program.

	SSEIT		TEIQue	
	Mean value ± standard deviation	p-value	Mean value ± standard deviation	p-value
Nursing	94.40 ± 12.68	< 0.001	155.05 ± 22.20	< 0.001
Engineering	79.66 ± 13.51		143.43 ± 20.78	

In summary, EI is significantly different between nursing and engineering students. This result confirms the trends that could be seen in the previous two hypotheses and were not always statistically significant, i.e. higher scores are related to previous caring experience and female students.

4. Discussion

This study examined the differences in emotional intelligence between nursing students with previous caring experience and those without, the effects of gender on emotional intelligence scores, and comparison of the EI scores of nursing students with those of the engineering students. The main limitation of the study was in sampling of the population where it was not possible to match the sample size of male and female between nursing and engineering students limiting the exploration of the impact of gender on the EI of the cohorts.

No significant differences in emotional intelligence between nursing students with previous caring experience and those without were found; this is congruent with the findings of Snowden et al (2015). A difference in EI scores related to gender and programme of study was detected. However, given the limitations of the sampling identified above, it is possible that this difference in EI scores between engineering and nursing students might partly be explained by the fact that females, who made up the majority of the nursing sample, generally score more highly on EI than males (Snowden et al 2015), who made up the majority of the engineering sample.

Researchers from the field of nursing have focused their research on the EI of future nurses, i.e. nursing students. Such studies have been conducted in a range of international contexts including the United Kingdom (eg Snowden et al 2015, 2017), USA (eg Jones-Schenk & Harper 2014), Spain (eg Aradilla-Herrero et al 2014), Korea (eg Jeong 2015) and Turkey (eg Cerit & Beser 2014). This study focused on the level of EI among diploma undergraduate nursing students in Slovenia. The level of EI of nursing students in relation to previous caring experience was observed and compared with engineering students, at the beginning of both diploma undergraduate study programmes. Based on the review of the literature, the following hypotheses were set up: students with previous caring experience will show higher EI than those without; men will have lower EI than women; and nursing students will have higher EI than non-nursing students.

Previous caring experience might enable students to self-select on the basis of a realistic understanding of nursing (Health Education England, 2014). However, despite being proposed as an important selection criterion for developing ‘caring’ nurses, previous caring experience

has not been found to correlate with EI or completion of nursing education (Snowden et al., 2015; Snowden et al., 2017). In fact, Stenhouse et al. (2016) found that previous caring experience was associated with poorer performance at the end of students' first year. Similarly, the results in this study found that previous caring experience was not associated with a higher level of EI. There is a question of whether students with previous caring experience might be more successful in their later work but this requires further longitudinal study beyond graduation.

The level of EI was also compared between male and female participants. In this context, previous qualifications were not taken into account as only the level of EI among both genders in both study programmes was observed and compared. Snowden et al. (2015) stated that the level of EI is higher among female students. Similar results were expected in this study, based on cultural similarities between both countries. The hypothesis was only partially confirmed in a group of engineering students. The result was not statistically significant, but the mean values clearly showed higher values in both scales and both study programmes for female students. The Turkish study showed that EI is significantly higher among female students of nursing (Cerit & Beser, 2014). Another study, dealing with EI by gender was previously performed in Spain, where the results were similar to those in Turkey, Slovenia and the United Kingdom (Fernandez- Berrocal et al., 2012).

The interpretation of the results shows that the level of EI among nursing students is noticeably higher than the level of EI among engineering students. The hypothesis can be confirmed on both SSEIT scale and the TEIQue scale. These findings supported those of Snowden et al. (2015), and might also be expected due to the nature of nursing work and the strong association of compassion, empathy, understanding and EI found in other studies. The fact is that studying nursing requires an adequate level of EI because of students' participation in clinical practice and in the clinical environment (Zysberg et al., 2011). Future nursing students are aware of what it means to study nursing, even if they have previously not attended a secondary school for HCT. They also know that working successfully as a nurse is highly connected with one's personal characteristics and values. Future nursing students will care for healthy, sick, dying, injured or elderly people during their study because the mere decision to study nursing means that the future students already have a certain level of compassion and empathy, as otherwise they would not have decided to study nursing in the first place. This does not mean that engineering students have no compassion or that they are not emotionally intelligent. It only shows that they have a lower level of EI in comparison with nursing students. It would also be very interesting to investigate the level of EI among students from other professional fields that

are more related to importance of being emotionally intelligent, for example, students of psychology, medicine or physiotherapy, and later compare them with nursing students.

5. Conclusion

EI as a topic is strongly associated with care, compassion and empathy. Nurses spend much time with patients as well as their relatives, hence it is important for them to have a high level of EI. During education it is necessary to teach nursing students about the importance of EI within nursing. A review of the literature showed that nursing students have a higher level of EI than students of some other courses. For this reason, statistical importance in difference between nursing and engineering students' EI was calculated to show that hypothesis can be confirmed. However, it was not possible to confirm a difference in EI between the group of nursing students with previous caring experience compared to those without. It has not yet been proved that students with previous caring experience are better in their job than those who did not have previous experience. This requires further longitudinal follow-up to examine the relationship between previous caring experience and performance in nursing over time. The Slovenian educational context, with its secondary education providing a standardised practice experience, provides a particularly good opportunity to understand the relationship between previous caring, EI and nursing performance. Studies also show that EI differs depending on students' gender with the same trend observed in student cohort of this study. Again the difference was not statistically significant in all subgroups, but the trend can be seen. Further studies with equal numbers of male and female nurses would facilitate a greater understanding of the gendered nature of EI in the nursing population and its impact on performance and retention. It is notable that the EI of students who had attended Slovenian secondary schools for HCT was not greater than those who had not, which raises the question of whether it is not simply 'doing' and learning about nursing that is important for EI development, but that perhaps there are specific educational interventions required to increase students' EI. This requires further exploration. As the study is designed as longitudinal, it will be possible to follow the students until the end of their programme and conduct different longitudinal analyses in the coming two years to confirm the initial findings reported in this paper.

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